

# AKAP 10 (51): sc-136512

## BACKGROUND

The type II cAMP-protein kinase (PKA) is a multifunctional kinase with a broad range of substrates. Specificity of PKA signaling is thought to be mediated by the compartmentalization of the kinase to specific sites within the cell. To maintain this specific localization, the regulatory (R) subunits (RI and RII) of PKA interact with specific R-anchoring proteins designated AKAPs (A-kinase anchoring proteins). AKAP 10 (A kinase anchor protein 10), also known as PRKA10 or D-AKAP2 (dual-specific A kinase-anchoring protein 2), is a 662 amino acid mitochondrial membrane protein that belongs to the AKAP family. AKAP 10 is a dual specificity protein that binds to both type I and type II regulatory subunits of PKA and anchors them to the plasma membrane or the mitochondria. When anchored to the mitochondria, PKA can phosphorylate and, thus, inactivate the proapoptotic protein Bad. This suggests that AKAP 10 indirectly regulates Bad-induced apoptosis by mediating the mitochondrial attachment of PKA. Additionally, AKAP 10 may facilitate G protein-coupled signal transduction and could act as an adaptor in the assembly of multi-protein complexes.

## REFERENCES

- Huang, L.J., et al. 1997. D-AKAP2, a novel protein kinase A anchoring protein with a putative RGS domain. *Proc. Natl. Acad. Sci. USA* 94: 11184-11189.
- Wang, L., et al. 2001. Cloning and mitochondrial localization of full-length D-AKAP2, a protein kinase A anchoring protein. *Proc. Natl. Acad. Sci. USA* 98: 3220-3225.
- Perkins, G.A., et al. 2001. PKA, PKC, and AKAP localization in and around the neuromuscular junction. *BMC Neurosci.* 2: 17.
- Hamuro, Y., et al. 2002. Domain organization of D-AKAP2 revealed by enhanced deuterium exchange-mass spectrometry (DXMS). *J. Mol. Biol.* 321: 703-714.
- Gisler, S.M., et al. 2003. PDZK1: II. an anchoring site for the PKA-binding protein D-AKAP2 in renal proximal tubular cells. *Kidney Int.* 64: 1746-1754.
- Burns, L.L., et al. 2003. Isoform specific differences in binding of a dual-specificity A-kinase anchoring protein to type I and type II regulatory subunits of PKA. *Biochemistry* 42: 5754-5763.
- Kammerer, S., et al. 2003. Amino acid variant in the kinase binding domain of dual-specific A kinase-anchoring protein 2: a disease susceptibility polymorphism. *Proc. Natl. Acad. Sci. USA* 100: 4066-4071.
- Burns-Hamuro, L.L., et al. 2004. Identification and functional analysis of dual-specific A-kinase-anchoring protein-2. *Meth. Enzymol.* 390: 354-374.

## CHROMOSOMAL LOCATION

Genetic locus: AKAP10 (human) mapping to 17p11.2; Akap10 (mouse) mapping to 11 B2.

## SOURCE

AKAP 10 (51) is a mouse monoclonal antibody raised against amino acids 369-479 of AKAP 10 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

AKAP 10 (51) is recommended for detection of AKAP 10 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for AKAP 10 siRNA (h): sc-93998, AKAP 10 siRNA (m): sc-140974, AKAP 10 shRNA Plasmid (h): sc-93998-SH, AKAP 10 shRNA Plasmid (m): sc-140974-SH, AKAP 10 shRNA (h) Lentiviral Particles: sc-93998-V and AKAP 10 shRNA (m) Lentiviral Particles: sc-140974-V.

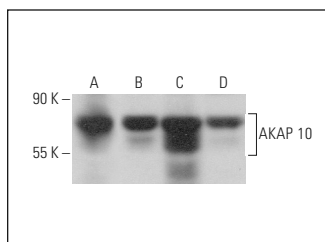
Molecular Weight of AKAP 10: 74 kDa.

Positive Controls: J774.A1 cell lysate: sc-3802, AKAP 10 (h): 293T Lysate: sc-113119 or RAW 264.7 whole cell lysate: sc-2211.

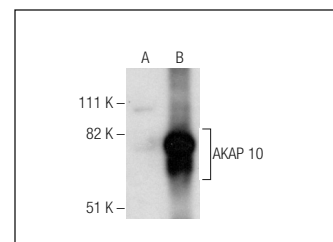
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



AKAP 10 (51): sc-136512. Western blot analysis of AKAP 10 expression in RAW 264.7 (A), M1 (B), J774.A1 (C) and SJRH30 (D) whole cell lysates.



AKAP 10 (51): sc-136512. Western blot analysis of AKAP 10 expression in non-transfected: sc-117752 (A) and human AKAP 10 transfected: sc-113119 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

- Lee, S.H., et al. 2018. Widespread intronic polyadenylation inactivates tumour suppressor genes in leukaemia. *Nature* 561: 127-131.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures. Not for resale.